

REMARKS

The Office Action dated September 12, 2005, has been received and carefully noted. Applicants respectfully request reconsideration of this application in view of the foregoing amendment and the following remarks.

By the foregoing amendment, Claims 1 and 2 are amended, and Claims 3-10 are withdrawn from consideration. Thus, Claims 1 and 2 are currently pending in this application and are subject to examination. No new matter has been added.

Objection to the Claims

Claim 1 is objected to as containing informalities. Claim 1 has been amended responsive to this objection. Should any further amendment be required to obviate this objection, Applicants request that the Examiner contact the Applicants' undersigned representative at the number listed below.

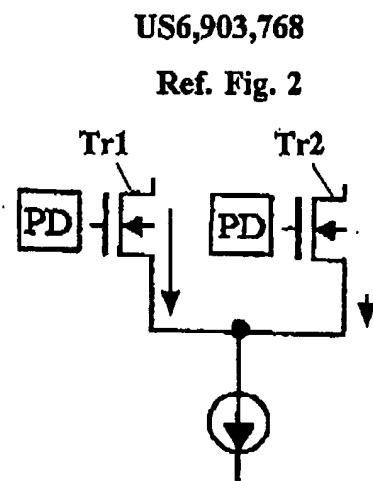
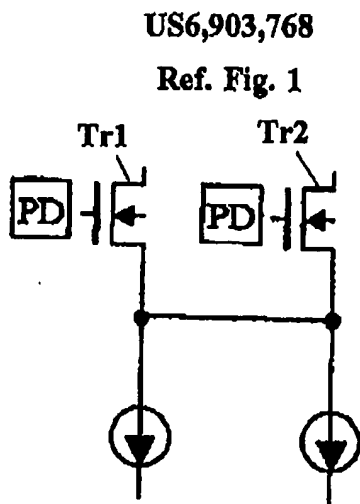
Rejection Under 35 U.S.C. § 102(e)

Claims 1 and 2 are rejected under 35 U.S.C. § 102(e) as being anticipated by Ohsawa et al. (U.S. Patent No. 6,903,768, hereinafter "Ohsawa"). To the extent this rejection remains applicable to the Claims currently pending, Applicants respectfully traverse the rejection.

Claim 1 sets forth an image sensor composed of a pixel array, with at least one row of pixels, where each pixel has a light receiving element and a reset switch connected to a reset node of the light receiving element, divided into an effective pixel region and an optical black pixel region. Claim 1 further sets forth a read-out circuit, scanning on the pixel array to read out signals from the pixels, including a black clamp

circuit for holding a signal from the optical black pixel region as an integrated dark current signal and for correcting a signal from the effective pixel region with the integrated dark current signal, where the optical black pixel region is composed of a potential averaging wiring directly connected to reset nodes of a plurality of pixels in a pixel row.

Applicants submit that Ohsawa fails to teach or suggest all the elements of the claimed invention. Claim 1 sets forth at least the feature of “wherein said optical black pixel region comprises a potential averaging wiring directly connected to said reset nodes of a plurality of pixels in a pixel row.” Ohsawa fails to teach or suggest this feature. Rather, Ohsawa teaches only the feature of “[T]he vertical signal lines 18-n to 18-(n+m) in the optical black pixel region are electrically connected by means of a wiring 30 made of aluminum or the like in the image sensing cell array 1, as shown in Fig. 10.” (See Ohsawa, col. 9, lines 55-57). This configuration is shown in Reference Fig. 1, provided below and is equivalent to Reference Fig. 2, also provided below, which shows a source-coupled differential amplifier.

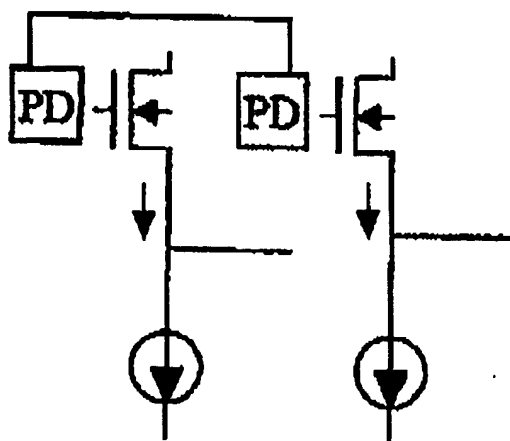


The differential amplifier operates in such a way that if the gate potential of a transistor Tr1 is higher than that of the gate potential of a transistor Tr2, a comparatively large current flows through the transistor Tr1 rather than the transistor Tr2. Therefore, if there is a defective optical black photo diode, the output is determined mainly by that photo diode, resulting in an inaccurate average. Thus, in Ohsawa, one defective optical black photo diode can primarily determine the output signal.

In contrast, amended Claim 1 sets forth "potential averaging wiring directly connected to said reset nodes." This causes the averaging to be performed before reading from optical black pixels to the vertical signal lines, as shown in Reference Figure 3, below. As a result, the invention of Claim 1, as amended, provides a more accurate output, even in the presence of a defective optical black photo diode.

The Present Invention

Ref. Fig. 3



To qualify as prior art under 35 U.S.C. § 102(e), a single reference must teach, i.e., identically describe, each feature of a rejected claim. For the reasons provided above, Applicants respectfully submit that Ohsawa does not teach or suggest each and every feature recited by Claim 1. Accordingly, Claim 1 is not anticipated, nor rendered obvious in view of, Ohsawa. Applicants therefore submit that Claim 1 is allowable over the cited prior art.

As Claim 1 is allowable, Applicants further submit that Claim 2, which depends from independent Claim 1, is allowable over the cited prior art for at least the same reasons that Claim 1 is allowable.


Conclusion

Applicants respectfully submit that this application is in condition for allowance and such action is earnestly solicited. If the Examiner believes that anything further is desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number listed below to schedule a personal or telephone interview to discuss any remaining issues.

In the event that this paper is not considered to be timely filed, an appropriate extension of time is requested. Any fees for such an extension, together with any additional fees that may be due with respect to this paper, may be charged to counsel's Deposit Account Number 01-2300, referencing Docket Number 107346-00016.

Respectfully submitted,

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